# Elerep® NiCr 70/15Mn

## Repair electrode

### Classification

| | |
|---|---|
| AWS A5.11M: | :E NiCrFe2* |
| ISO 14172 | :E Ni 6182 (NiCr15Fe6Mn)* |

* Deviation: see remarks

### General Description

Fully basic all position NiCr electrode
High creep resistance up to 815°C
High resistance to embrittlement
High toughness also at low temperature (-196°C)
For welding, Ni base alloys (as Alloy 600) and dissimilar joints
High resistance to carburization

### Welding positions

| ISO/ASME | PA/1G | PB/2F | PC/2G | PF/3G up | PE/4G | PF/5G up |
|---|---|---|---|---|---|---|

### Current type

DC electr. +

### Chemical composition (w%), typical, all weld metal

| C | Mn | Si | Ni | Cr | Nb | Fe |
|---|---|---|---|---|---|---|
| 0.02 | 4.4 | 0.45 | bal | 18 | 1.9 | 6 |

### Mechanical properties, all weld metal

| | | Shielding gas | Condition | Yield Strength 0,2 % ($N/mm^2$) | Tensile Strength ($N/mm^2$) | Elongation (%) | Impact (ISO), J | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | +20°C | -196°C |
| Required | AWS A5.1 | | | not required | min 550 | | not required | |
| | ISO 14172 | | | min 360 | min 550 | min 30 | not required | |
| Typical values after welding | | | AW | 430 | 680 | min 27<br>40 | 145 | 130 |

### Packaging, available sizes and identification

| | | | | | |
|---|---|---|---|---|---|
| | Diameter (mm) | 2.5 | 3.2 | 4.0 | 5.0 |
| | Length (mm) | 300 | 350 | 350 | 450 |
| Unit: | Pieces / unit (nominal) | 140 | 73 | 50 | 26 |
| Box | Net weight (kg) | 2.5 | 2.5 | 2.5 | 2.5 |

| **Identification** | Imprint: Elerep®NiCr 70/15Mn |
|---|---|

**Elerep®NiCr 70/15Mn : rev.EN 20**

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## Materials to be welded

| Material grades | BS 3076 | DIN 17742<br>SEW 470/595 | W.Nr | ASTM/SCI<br>B 366 | UNS |
|---|---|---|---|---|---|
| Ni base on Cr alloyed steel, | | LC-NiCr15Fe | 2.4817 | | NO6600 |
| for high and low | NA 14 | NiCr15Fe | 2.4816 | Alloy600/B168 | NO6600 |
| temperature service | | NiCr23Fe | 2.4851 | Alloy601(H) | NO6601 |
| | | NiCr60 15 | 2.4867 | | |
| | | NiCr80 20 | 2.4869 | | |
| | | NiCr20Ti | 2.4951 | Alloy75 | NO6075 |
| | | NiCr20TiAl | 2.4952 | Alloy80A | NO7080 |
| | NA17 | X12NiCrSi36 16 | 1.4864 | 330 | NO8330 |
| | | G-X10NiCrNb32 20 | 1.4859 | | |
| | NA15 | X10NiCrAlTi32 20 | 1.4876 | Alloy800/800H | NO8800/NO8810 |

Especially for repair welding of difficult to weld steels.
Suitable for welding dissimilar metals:
- Mild- and low-alloyed steel to stainless steel.
- Mild- and low-alloyed steel to Ni base alloys
- Stainless steel to low-alloyed creep resisting steel.

Not sensitive for embrittlement after heattreatment.

## Calculation data

| Sizes<br>Diam.x<br>length<br>(mm) | Range of<br>current<br>(A) | Type of<br>current | Arc time<br>- per electrode at max. current -<br>(s)* | Energy<br>E (kJ) | Dep. rate<br>H (kg/h) | Weight/<br>1000 pcs.<br>(kg) | Electrodes/<br>kg weldmetal<br>(pcs) | kg Electrodes/<br>kg weldmetal<br>(1/N) |
|---|---|---|---|---|---|---|---|---|
| 2.5x300 | 40-60 | DC+ | 44 | 63 | 0,9 | 17,5 | 91 | 1,59 |
| 3.2x300 | 70-100 | DC+ | 52 | 107 | 1,3 | 29,2 | 52 | 1,54 |
| 4.0x350 | 90-160 | DC+ | 61 | 214 | 2,0 | 51,0 | 29 | 1,47 |

*stub end = 35 mm

## Welding parameters,optimum fill passes

| Welding position<br>Diameter (mm) | PA/1G<br>Current<br>(A) | PB/2F | PC/2G | PF/3G up | PE/4G | PF/5G up |
|---|---|---|---|---|---|---|
| 2.5 | 60 | 55 | 60 | 60 | 60 | 60 |
| 3.2 | 90 | 80 | 90 | 80 | 80 | |
| 4.0 | 120 | 120 | | | | |

## Remarks

Deviations: chemical composition:

| | | |
|---|---|---|
| Mn = 3.0-6.0% | AWS: Mn = 1.0-3.5% | ISO: Mn = 5.0-10.0% |
| Cr = max 18.0% | AWS: Cr = max 17.0% | ISO: Cr = max 17% |

## Application advice

Welding with heat input max. 1,5 kJ/mm
Interpass temperature max. 150°C